

Appendix G: Glossary and Acronyms

Key for Acronyms

ATV	All-terrain vehicle
BA	Biological Assessment
BE	Biological Evaluation
BMPs	Best Management Practices
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CNNF	Chequamegon-Nicolet National Forest
DBH	Diameter at Breast Height
DNR	Department of Natural Resources
EA	Environmental Assessment
FR	Forest Road
FSH	Forest Service Handbook
GIS	Geographic Information System
HUC	Hydrologic Unit Code
IDT	Interdisciplinary Team
MA	Management Area
MIH	Management Indicator Habitat
MA 1B	Early Successional: Aspen, Mixed Aspen-Conifer, and Conifer
MA 2A	Uneven-aged Northern Hardwoods
MA 2B	Uneven-aged Northern Hardwoods: Interior Forest
MA 2C	Uneven-aged Northern Hardwoods: Mixed Forest
MA 4A	Conifer: Red-White-Jack Pine
MA 4B	Conifer: Natural Pine-Oak
MA 4C	Conifer: Surrogate Pine Barrens
MA 8A	Argonne Experimental Forest
MA 8D	Existing, Eligible, and Potential Eligible Scenic River
MIS	Management Indicator Species
MMBF	Million Board Feet
NEPA	National Environmental Policy Act
NFS	National Forest System
NHPA	National Historic Preservation Act
NNIP	Non-native Invasive Plants
NNIS	Non-native Invasive Species
NRHP	National Register of Historical Places
RACR	Roadless Area Conservation Rule
RFSS	Regional Forester Sensitive Species
ROS	Recreational Opportunity Spectrum
SHPO	State Historic Preservation Office
SIO	Scenic Integrity Objective
TES	Threatened, Endangered, and Sensitive
TEUI	Terrestrial Ecological Unit Inventory
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WDNR	Wisconsin Department of Natural Resources
WUI	Wildland Urban Interface

GLOSSARY

Aquatic Ecosystems: The stream channel, lake, or estuary bed, biotic communities, and habitat features that occur therein (FSM 2526.06 Page 18).

Basal Area (BA): Measurement of how much of a site is occupied by trees. It is determined by estimating the cross-section area of all the trees in an area at breast height (4.5 feet).

Biochar: applying a soil addition that reduces undesirable vegetation and exotic worm competition.

Canopy: The more or less continuous cover of branches and foliage formed collectively by the crown of adjacent trees and other woody growth.

Canopy Gaps: A treatment that is used primarily in northern hardwood stands. Patches of non-merchantable trees are cut to create anywhere from a 25 to 60 foot gap in the canopy of the overstory trees. This small opening, with no overstory, would be favorable to mid-tolerant species such as yellow birch and hemlock. The ultimate goal is to create a stand that has a high amount of species diversity.

Class I Trout Water: High quality trout waters, with sufficient natural reproduction to sustain populations of wild trout at or near carrying capacity.

Class II Trout Water: Streams with some natural reproduction, but not enough to fully utilize available habitat. Artificial stocking is sometimes required to maintain a desirable sport fishery.

Class III Trout Water: Marginal trout habitat with no natural trout reproduction occurring. These streams require regular stocking if a sport fishery is desired.

Classified Roads: Roads wholly or partially within or adjacent to National Forest System lands that are determined to be needed for long-term motor vehicle access, including State roads, county roads, privately owned roads, National Forest System roads, and other roads authorized by the Forest Service (36 CFR 212.1).

Clearcut (similar to Coppice): An even-aged harvest in which all merchantable trees of all species are removed at one time, with the exception of reserve trees left for wildlife, visual, or ecological purposes. Unmerchantable trees may also be felled to eliminate competition with regeneration. Regeneration of the future stand can occur naturally through sprouting as with aspen or birch, from the seed of cone-bearing slash such as jack pine, or artificially by full planting. In addition, this harvest is used for unhealthy spruce stands where mortality is high and a salvage is needed to rejuvenate the stand. Clearcutting is the optimum harvest method for shade intolerant species such as aspen and jack pine. Cutting submerchantable trees left after an aspen clearcut harvest may be necessary. Aspen will naturally regenerate through root sucking. This method of site preparation for natural regeneration promotes optimum aspen sprouting by allowing full sunlight to reach the forest floor. Conifers will need artificial regeneration through site preparation and planting.

Example of a Clearcut



Commercial Thinning: an intermediate cut designed to enhance the growth and quality of crop trees. This is the most common type of cut for red pine, white pine, and spruce stands. The high quality and healthy trees are usually left behind to serve as the crop trees while the suppressed and unhealthy trees are cut out from the stand. The number of crop trees left behind depends on size and spacing of the trees in the current stand.

Conifer: Any of predominantly evergreen, cone bearing trees, such as pine, spruce, hemlock, or fir.

Cubic Foot: A common unit of measure for wood volume equivalent to a cube 12" on all sides. (Common cubic unit is CCF or 100 Cubic Feet)

Diameter at Breast Height (DBH): a standard method of expressing the diameter of the trunk or bole of a standing tree. DBH is one of the most common tree measurements.

Ecosystem: A community of living plants and animals interacting with each other and with their physical environment.

Edge: The places where two ecosystems meet; it can also refer to the meeting of two similar communities of differing ages, such as the edge between young aspen and old aspen.

Ephemeral Ponds: Small forest ponds that only hold water during spring snowmelt, or after heavy rains. In some cases, their duration is short enough that the entire pond area is forested with species that are not considered tolerant of flooding.

Even-aged Management: The establishment, tending, and harvest of forest stands where trees are of essentially the same age. A stand is considered even-aged if the age difference among trees forming the main canopy level does not exceed 20 percent of the rotation age. Even-aged management often uses a series of thinnings to improve diameter growth, until the stand reaches maturity. When rotation age is reached, the stand is harvested and regenerated over a relatively short time, using the clearcut or shelterwood systems. Regeneration may be natural (from seed or sprouts) or artificial (from planted seedlings). Even-aged methods are particularly suited to shade-intolerant species.

Fireline Intensity (Flame Length): Predicted by BEHAVE using fuel model and local conditions. Based on a combination of ROS and fire intensity factors. Units are in Btu/foot/second.

Fragmentation: The process by which larger areas of similar community type or age are broken into smaller fragments of that type or age, with varying degrees of isolation from each other. Examples include areas of extensive hardwood forests being broken into small woodlots by agricultural and urban development, or extensive native prairie being lost to cropland.

Forest Type: A descriptive term used to group stands of similar character of development and species composition, due to given ecological factors, by which they may be differentiated from other groups of stands.

Fuel Loading: The amount of flammable material that surrounds a fire is referred to as the fuel load. Fuel load is measured by the amount of available fuel per unit area, usually tons per acre. The higher the fuel loading, the more heat that will be produced during a fire.

Gap: A small opening created in a forest canopy, generally from wind throw. Gaps may result from loss of a single tree, or from a larger group of downed trees. Gap formation is an important aspect of change and regeneration in many forests.

Hardwood: A broad-leaved flowering tree, as distinguished from a conifer. Trees belonging to the botanical group of angiospermae.

Harvest (Timber Harvest): Cutting and removal of trees from the forest for utilization. The commercial removal of trees to achieve stated objectives.

Improvement Cut: An intermediate cut to develop uneven-age structure in an even-aged or two-aged forest. The most common use for this type of cut is when trying to convert a mature aspen stand into a northern hardwood stand. In this example, the high risk of mortality aspen are removed to promote the next succession of species, usually mixed hardwoods.

Individual Tree Selection: The removal of individual trees or small groups from many size and age classes over an entire stand area. This uneven-aged management system is utilized to develop stands into at least three distinct age classes. Besides improvement in structure, maintaining or developing species diversity is also an objective. Tree removal focuses on those species that are over-abundant.

This is the most common type of cut in northern hardwood stands in order to obtain the desired conditions of a multi-aged stand. It allows for increased sunlight to hit the forest floor and decreased competition for nutrients in the soil which should result in better hardwood regeneration. In the case of northern hardwood stands, these species are primarily sugar maple as well as basswood, red maple, and small quantities of black cherry and ash. Regeneration is typically natural, and an uneven-aged stand is maintained. Three to six canopy gaps (very small openings generally less than 40 feet in diameter with a few up to 60 feet) per acre may be created to provide sunlight for regeneration of shade intolerant species such as yellow birch, basswood, and black cherry. Depending on the initial stand condition, several treatments over a period of 40 to 50 years may be necessary to create uneven-age conditions. The interval between selection harvests is generally 15 to 20 years.

Example of Selection Cut



Interior Forest: An area of late-successional or old growth forest that is large enough and of an appropriate shape to provide conditions that minimize predation, parasitism, and microclimate fluctuations associated with forest edges.

Intolerant Species: Those plant species that do not grow well in shade.

Ladder Fuels: Fuels which provide vertical continuity between strata, thereby allowing fire to carry from surface fuels into the crowns of trees or shrubs with relative ease. They help initiate and assure the continuation of crowning.

MBF: One thousand board feet of timber.

MMBF: One million board feet of timber.

Mechanical Site Preparation (e.g. Disk

Trenching): A treatment that usually occurs after a stand has been clearcut and is planned to be planted in the near future. There are several different methods of site preparation including burning, roller chopping, or disk trenching (mechanical), and by chainsaw/brush saw (manual). Disk trenching is done by a machine that disturbs the soil and creates rows of holes, making it much easier to plant the seedlings. The objective is to not only eliminate all of the unwanted tree competition, but to prepare the soil before the seedlings are put into the ground, increasing the probability of seedling survival.

Example of Mechanical Site Preparation



Mechanical Site Preparation (e.g. Salmon Blading): A treatment that is used to scarify the ground to create a better seed bed for mid-tolerant tree species such as red oak, yellow birch, and hemlock. The blade is usually attached to a dozer and would remove all non-woody vegetation as well as some smaller woody vegetation along the forest floor. The result would be exposed bare mineral soil for the seed crop. This treatment can be done within canopy gaps or for the entire stand.

Motor Vehicle Use Updates:

Open Road, Add to MVUM: These include roads that are open on the ground and being used by the public, but are not currently on the Motor Vehicle Use Map (MVUM). The travel analysis showed these roads to either be low risk roads to natural resource impacts or the risk could be mitigated in road design. The proposed action is to label these roads as open on the MVUM so they reflect what is on the ground.

Add Road to National Forest Road System but not MVUM (for Non-motorized or Administrative Use): These roads are very similar to the above, Open Road, Add to MVUM situation, except that the final outcome for these roads would be roads closed to public motorized access. These roads would be open for non-motorized public use or future administrative use (i.e. agency use). Typically, these roads could cause resource damage and provide limited public use, so resource damage would be mitigated but access would still be available.

Remove from MVUM: 1) Close Road: These include roads that are closed on the ground and stated open on our Motor Vehicle Use Map (MVUM). The proposed action is to label these roads 'closed' on the MVUM so they reflect what is on the ground. 2) Open Roads to be removed from the MVUM: These are roads that are currently on the MVUM and open for public use, but have been recommended for removal. Some of these roads provide access to private lands and should only be open to the Special Use Permit holder. Other roads in this category are causing resource damage and provide limited public use; typically current use is illegal ATV travel.

Concerning road actions that are connected to the proposed activities in this alternative, some roads would need additional maintenance work or activities not outlined in the proposed road activities in order to make them safe to travel and reduce natural resource impacts from existing roads. These maintenance activities are included in this analysis and would continually be monitored for resource effects during project implementation. If the Responsible Office deems future maintenance activities are outside the effects analysis of

this document, additional NEPA analysis would be completed on the new road activities. If they have minimal impacts to resources around them and the Responsible Official believes the activities are within the effects analysis of this document, no additional NEPA analysis would be completed because this would 'count' for the activity's NEPA analysis. For example, if additional gravel needs to be added to a forest road or a road corner needs to be straightened within the road prism for safety purposes, no additional NEPA analysis would be completed because effects are considered minimal or unmeasurable and are within the bounds of the effects analysis of this document. If a couple miles of additional road construction is needed to complete a harvest activity, then additional NEPA analysis and public scoping would likely be completed due to the scale and scope of impacts.

Navigable: A waterway is navigable if it has bed and banks, and it is possible to float a canoe or other small craft in the waterway on a regular reoccurring basis – even if only during spring runoff.

Non-native Invasive Species: Species that are not native to a particular place and are causing disruption of the natural process of that place, displacing native plant and animal species, degrading natural communities, etc.

Old Growth: A community with dominant trees at or near their biological maturity. The age and structure of an old-growth community varies with species and site. Old growth stands are sometimes characterized by a multi-layered, uneven-age size class structure; a high degree of compositional and structural patchiness and variety; and significant amounts of woody debris and tip-up mounds.

Overstory Removal: This type of harvest differs from a clearcut in that there is already an established understory of desired species. The overstory is removed and a new stand is created from the understory tree species. This most commonly occurs in stands that have had preparation and seed cuts in the past as part of a shelterwood system, or in aspen/spruce/fir mixed stands where the overstory is at high risk of mortality and an understory has developed through succession.

Partial Overstory Removal: Similar to an overstory removal except that certain trees will be left due to wanting to keep a specific species in that stand (most commonly done for white pine).

Patch: An area of similar vegetation type and age, such as a mature white/red pine patch, or a regenerating aspen patch. This term is sometimes but not always analogous to the term "stand."

Perennial stream: A stream that flows throughout most (i.e. >50 percent) of the year.

Pre-Commercial Thinning (PCT) - A thinning that removes trees that are not yet merchantable to enhance the growth and quality of remaining trees. This treatment is common in all pine and spruce stands.

Example of Understory Burn



Prescribed Burning for Regeneration (Understory Burn) – Usually a low intensity burn that is used to eliminate unwanted species that are outcompeting and inhibiting the growth of desired species. This type of treatment is most commonly used in oak and paper birch typed stands since these species respond well after fire.

Rate of Spread: Refers to the rate at which a fire grows in size. Predicted by the Behave Plus Fire Modeling System (BEHAVE) using fuel model and local conditions. Units measured are in chains/hour.

Reforestation: The restocking of an area with forest trees following a harvest or natural event such as fire or wind damage. Natural systems include seeding or sprouting. Artificial methods include planting and underplanting.

Regeneration: The process of replacing older trees removed by harvest or disaster with young trees. Regeneration can be accomplished artificially by planting seedlings or naturally, for some species, through sprouting or suckering.

Release: A treatment designed to free young trees from undesirable, usually over-topping, competing vegetation.

Reserve Trees: In even-aged managed areas, variable sized reserve islands are created that total up to ½ acre for every 10 acres managed. To emphasize diversity and/or mast trees, tree species such as hemlock, northern white cedar, white pine, red oak, American beech, hickory, blue beech, ironwood, paper birch, and yellow birch are included in these islands (Forest Plan at 2-14). In uneven-aged managed stands, 3 to 7 live trees per acre larger than 11 inches in diameter are to be retained, focusing on the largest trees. Long-lived conifers such as hemlock, cedar, and white pine are emphasized for retention. Under-represented species such as yellow birch, red oak, and paper birch are also retained (Forest Plan at 3-11). Where they are numerous, a few individuals of these species may be removed to reduce stocking to the recommended basal area and to take advantage of regeneration opportunities. All dead snags and live den trees up to 10 snags per acre are retained, unless they present a safety concern. Additional snags may be recruited from live reserve trees. (Forest Plan at 2-14).

Restoration/Restoration Thin: a harvest in a previously planted stand (or near previously planted stand) that reduces the amount of trees per acre within a stand in order to allow for the reintroduction of prescribed fire. Prescribed fire is crucial in these stands because the unique ecosystems in those areas depend on them and have been without these restorative burns for many decades. By introducing fire in these select stands, the stands are encouraged to return to historical tree conditions and smaller plant ecosystems.

Riparian Ecosystem: The transitional area between the aquatic ecosystem and the adjacent terrestrial ecosystem. It is identified by soil characteristics and distinctive vegetation communities that require free or unbound water (FSM 2526.05 page 18).

Riparian Management Zone (RMZ): Land and vegetation areas next to lakes and streams where management practices are modified to protect water quality, fish, and other aquatic resources.

Road: A motor vehicle travelway over 50 inches wide, unless designated and managed as a trail. A road may be classified (authorized), unclassified (unauthorized), or temporary.

Road Construction – Permanent: Most of these miles are extensions of existing roads and most of these roads would be closed after timber harvesting is complete to protect various resources and prevent any increases in open road density levels. Some would be maintained as open to provide increased access to the Forest by the public.

Road Construction – Temporary: These temporary roads are proposed to provide access to aspen clearcuts. These forest stands would not need to be entered again for 30 or more years so permanent open access is not required. At the conclusion of proposed activity, the road would be decommissioned and would not be included in road density numbers.

Road Decommissioning: Activities that result in the stabilization and restoration of unneeded road corridors to a more natural state. These roads were determined to be high risk to natural resources and low to moderate value and/or are not needed for long-term access. Thus, these roads would be taken off the Motor Vehicle Use Map if they have not been already and would be left to become overgrown with vegetation. In most cases, an earthen berm would be placed at the entrance of the road and culverts would be pulled from the road, allowing natural hydrologic function.

Road Maintenance: The ongoing upkeep of a road necessary to retain or restore the road to the approved road management objective (FSM 7712.3).

Road Reconstruction: Activity that results in improvement or realignment of an existing classified road to bring the road quality up to allow safe implementation access. Typically, existing old culverts would be replaced to minimize water resource impact.

Road Re-labeled to Trail: these roads were mislabeled as roads on the Motor Vehicle Use Map (MVUM) and the Forest Service is proposing to label them correctly as non-motorized trail on the MVUM with this decision.

Rotation Age: The age at which a tree or stand is considered mature and ready for harvest.

Salvage / Sanitation – The removal of trees damaged by insect, disease, or natural causes such as high winds. The National Forest in recent years has experienced a decline in white spruce stands due to a combination of spruce budworm, a needle drop fungus, drought conditions, and root rot. Once the crown of a tree becomes too thin (less than 33% live crown) or mortality gets too high in a stand (>10%), a salvage harvest has been used to remove and utilize the trees before mortality ensues.

Scarification: The process of removing the forest floor or mixing it with the mineral soil, to prepare a site for seeding or planting of tree seedlings.

Sediment: Soil that has eroded from the land surface, often by overland water flow, and is then transported and deposited away from its original location.

Sensitive Species: Those plant and animal species identified by the Regional Forester for which population viability is a concern, as evidenced by a significant current or predicted downward trend in population numbers or density, or significant current or predicted downward trend in habitat capability that would reduce a species distribution.

Shelterwood – A multistage cutting method (consisting of a preparation cut, seed cut, and removal cut) used in a more or less mature stand, designed to establish a new age class. The preparation cut is to condition the stand for a future seed cut. The seed cut is a regeneration harvest to obtain natural regeneration by seeding from leave trees and by providing shade from leave trees. The seed cut retains enough trees to provide about 20-50% shade on the ground. The removal cut is a harvest to remove the overstory from an area regenerated by the preparation and seed cuts.

The partial cover of residual mature trees provides the natural or planted seedlings partial shade, increased ground moisture, frost protection, and in some cases, protection from insect damage such as white pine weevil. Stocking levels following harvest would vary by forest type. For example, shelterwood treatment for white pine would leave a 40 percent crown cover, red oak a 40 to 60 percent crown cover, and paper birch a 25 to 40 percent crown cover. A hand release treatment may be necessary a few years after underplanting to reduce competition to the planted seedlings from any undesirable tree species. The overstory is usually removed after the regeneration is established.

Site Preparation: The general term for removing unwanted vegetation, slash, roots, and stones from a site before reforestation (natural or artificial), typically using mechanical scarification. Prescribed fire can also be used to prepare a site for natural regeneration.

Slash Disposal: Dispose slash created from management activities through chipping, biomass removal, burning, or other appropriate methods.

Snag: A standing dead tree, or portion of tree; often contains structural features such as loose bark, broken branches or top, and cavities.

Species Viability: The occurrence or maintenance of self-sustaining and interacting populations that are well distributed through a species range.

Stand: A contiguous group of trees sufficiently uniform in age-class distribution, composition, and structure, and growing on a site of sufficiently uniform quality, to be a distinguishable unit.

Succession: A series of dynamic changes by which organisms succeed one another through plant community stages, leading to a potential natural community or climax. Stages are transitory in nature, and describe a plant community from its earliest growth condition (early successional) to a condition of full maturity (late successional).

Suitable Forest Land: Lands on a Forest that constitute the land base for determining the allowable sale quantity and which are managed for timber production on a regulated basis.

Example of Slash Disposal



Example of Thinning

Thinning: This harvest is conducted in even-aged stands to reduce crowding and concentrate growth on the best quality trees. The number of trees per acre is reduced to numbers recommended by research specific to each species type. Approximately one third of the trees are cut at any one entry and the trees targeted for removal are ones that are less competitive, have forks or crooks, have health problems, or are spaced too closely to a better quality tree. Thinnings are intermediate treatments and are not intended to create a new age class.



Timber Stand Improvement (TSI) (e.g. release): A treatment that is used to improve the growth and quality of desired vegetation at the non-merchantable seedling/sapling size. In other words, unwanted species are cut to reduce the competition on desired species. This can be done either as an area release or an individual tree release. For an area release,

all unwanted seedlings/saplings in the entire stand are cut. For an individual tree release, only the unwanted vegetation directly affecting the desired vegetation is cut (e.g. all vegetation would be cleared in a 4 foot radius around each planted seedling).

Unauthorized Road: A road that is not a Forest road or a temporary road and is not included in a forest transportation atlas.

Underburning: See Prescribed Burning for Regeneration.

Underplanting: Trees are planted under the existing overstory which serves as a shelterwood to protect the planted trees from harsh wind and direct sunlight until they become established.

Uneven-aged Management: The creation and maintenance of many age or size classes within a given forest stand. A balanced uneven-aged stand contains all size classes from seedlings through maturity, with equal amounts of growing space allotted to each size class.

Unsuitable Forest Land: Forest land not managed for timber production.

Wetlands: Areas that are inundated by surface or ground water with frequency sufficient to support, under normal circumstances, vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction (FSM 2527.05 page 23).